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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,609

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EXAMINER

LOEWE, ROBERT S

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,609	Applicant(s) MEYER ET AL.	
	Examiner ROBERT LOEWE	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's amendments regarding claims 1 and 2 have been fully considered. The rejection of instant claim 1 under Bergstrom et al. is maintained. Bergstrom et al. explicitly teaches surface-modified silica having the claimed hydrophobic groups of instant claim 1 and further teaches many of the physical and chemical property limitations of instant claim 1. Those limitations not claimed are deemed to be inherent to the silica. Again, Applicants are invited to show the physical property limitations of the silylated silica taught by Bergstrom et al. such as DBP absorption falls outside the claimed range. The Examiner is maintaining the position that while Bergstrom et al. does not teach pyrogenically prepared silica, the limitation "pyrogenically prepared silica" refers to product-by-process claim language. In such cases, patentability is limited to the product itself. Therefore, for the instant case, a prior art reference satisfying all of the physical and chemical property limitations as well as the nature of the hydrophobic surface-modifying groups of instant claim 1 can be considered to be anticipatory even if the silica taught in said prior art reference is not pyrogenically prepared, as is the case with the Barthel reference. Applicants argue that Bergstrom et al. employs fumed silica in a control experiment and therefore suggests that the forms of silica is critical to the outcome desired by Bergstrom et al. This argument is not persuasive since the data shown by Bergstrom et al. shows that the physical properties of the fumed silica control experiment are very similar to those obtained with the precipitated silica (Table 3).

Applicant's arguments regarding claims 1-8 (Barthel et al.) have been fully considered but they are not persuasive. Further, Applicant's arguments about the differences between

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Barthel et al., Mangold et al. and Scharfe et al. are not persuasive. Any differences which may exist between Barthel et al., Mangold et al. and Scharfe et al. are not relevant since Mangold et al. and Scharfe et al. are relied upon as evidentiary references.

Applicants argue that Barthel et al. does not explicitly teach a destructuring step which imparts the low structure characteristic in the Applicant's invention. While Barthel et al. does not refer to the silica as having a low structure, such a teaching is nevertheless believed by the Examiner to be inherent. Specifically, Barthel et al. explicitly teaches the step of including the use of a ball-mill (paragraphs 0064-0065) and also teaches that the silica may be subjected to a pinned-disk mill process (paragraph 0066). In the working examples of the instant specification, it is taught that the "conditioned material is structurally modified with a ball mill, followed if necessary by post-grinding with a toothed-disc mill" (paragraph 0041). Because Barthel et al. employs the same means for manipulating and purifying the silica as the Applicant's invention, it follows that Barthel et al. inherently teaches the preparation of silica having a low structure as claimed by Applicants.

The Examiner would be happy to further discuss the instant case with Applicants at their convenience in the form of a telephonic or in-person interview as requested by Applicants.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bergstrom et al. (US Pat. 6,384,125), and further evidenced by Griffith et al. (US Pat. 5,908,660) and Burns et al. (US Pat. 6,051,672).

Claim 1: Bergstrom et al. teaches a silanized, structurally-modified silica characterized by vinyl silyl groups being fixed to the silica surface and further comprising hydrophobic groups such as dimethylsilyl additionally being fixed to the silica surface (10:40-67 and Table 2). Bergstrom et al. additionally teaches that the surface-modified silicas have a BET surface area of 100 to 500 m²/g (3:57-61), an average particle size of 5-100 nm (claim 3), and a pH range of about 3 to 8 (Table 2). The Office realizes that all of the claimed properties are not positively stated by Bergstrom et al. However, Bergstrom et al. teaches all of the claimed ingredients. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches all of the claimed ingredients, then any physical or chemical properties claimed but not explicitly taught in the prior art reference would inherently be present. If it is the applicant's position that this would not be the case evidence would need to be provided to support the Applicant's position.

Further, Bergstrom further teaches that the surface-modified silica is prepared according to US patents 5,908,660 (Griffith et al.) and 6,051,672 (Burns et al.), whose references are incorporated into the teaching of Bergstrom et al. (7:22-27). Burns et al. teaches in Table 1, a carbon content of no more than 10% based on the fact that only about 50% of the trimethylsiloxy groups of table 1 is made up of carbon ($16.55\% * 0.50 = 8\%$). The remaining carbon containing species contribute little to the overall carbon content.

While Bergstrom does not teach that the silicas employed therein are pyrogenically produced, this limitation of instant claim 1 is presented as a product-by-process claim. The courts have stated that even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Barthel et al. (US application 2003/0138715) and further evidenced by Scharfe et al. (US 2003/0138715) and Mangold (US Pat. 5,976,480).

Claim 1: Barthel et al. teaches a process of preparing surface-modified, low-silanol silica by reacting one or more organosilanes with silica (abstract). Barthel et al. teaches that suitable silylating agents include vinylalkoxysilanes and alkylalkoxysilanes (paragraph 0039). Specifically, Barthel et al. teaches that suitable silanes include vinyltrimethylchlorosilane and divinyltetramethyldisilazane (paragraph 0039). Both of these species of silanes would inherently yield silanized silica having **both** vinylsilyl groups and methylsilyl groups are required by instant claim 1. Barthel et al. additionally teaches that the surface-modified silicas have a BET surface area of 25 to 500 m²/g (paragraph 0123), an average particle size of 5-100 nm (paragraphs 0077 and 120), and a carbon content of 1.7-5.4% (Table 1-1). Barthel et al. further teaches that the starting silica has, for example, a pH of 4.1 (paragraph 0183).

Barthel et al. is silent with regards to the DPB absorption. However, Barthel et al. teaches all of the claimed ingredients. Therefore, the DBP absorption would inherently be achieved by a composition with all the claimed ingredients. Therefore, if the prior art teaches all of the claimed ingredients, then any physical or chemical properties claimed but not explicitly taught in the prior art reference would inherently be present. If it is the applicant's position that this would not be the case evidence would need to be provided to support the Applicant's position. Further, pyrogenically prepared silica, the preferred starting silica of Barthel et al., is known to have DBP absorption values which fall within the range of instant claim 1, as evidenced by Scharfe (table in paragraph 0011) and Mangold (abstract).

Claim 2: Barthel et al. teaches a process for producing silanized, structurally modified silica comprising: (a) mixing/treating the pyrogenically prepared silica and silylating agents (paragraph 0050-0057), (b) reacting the pyrogenically prepared silica and silylating agent mixture by heating the mixture (paragraphs 0058-0060), and (c) purifying the silylated silica by means of mechanical action (paragraphs 0061-0067). Barthel et al. further teaches additional steps which may take place following the purification of the pyrogenically-produced silica, involving mechanical compaction/destruction by means of a press-roller, or grinding equipment such as ball mills (paragraphs 0064-0065). Therefore, Barthel et al. teaches structural modification steps involving mechanical action which acts to destructure the silica. Such a destructuring process would satisfy the limitation "to form low structured, pyrogenic silica". The limitation that the silanized, structurally modified pyrogenically produced silica is recovered is inherently taught by Barthel et al. by the simple fact that Barthel et al. performs analysis of the final silylated silica (i.e., the silica must have been recovered in order to perform the analytical

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testing). Barthel et al. teaches that suitable silylating agents include vinylalkoxysilanes and alkylalkoxysilanes (paragraph 0039).

Claim 3: Barthel et al. further teaches that the silica can be first sprayed with water and then with the surface-modifying agent (paragraph 0185).

Claim 4: Barthel et al. further teaches that the silica is treated with the surface-modifying agent in vapor form (paragraph 0185). It is the position of the examiner that by introducing the surface-modifying agent via atomization through a nozzle, Barthel et al. teaches that the surface-modifying agent is introduced in vapor form. One definition of vapor as defined by Merriam-Webster is "diffused matter (as smoke or fog) suspended floating in the air and impairing its transparency". While vapor is also defined as a material in its gaseous state, one could reasonably apply the first definition cited above; therefore Barthel et al. anticipates the limitations of instant claim 4.

Claims 5 and 6: Barthel et al. further teaches many post surface-modification steps can be performed, including grinding and compacting and conditioning (paragraphs 0061-0069).

Claim 7: Barthel et al. further teaches that the silicone rubber can be used as fillers (paragraph 0180).

Claim 8: Barthel et al. further teaches that prior to the heat-treatment step, a mixing step can be performed (residence time of 2.5 hours at 25 °C as taught in paragraph 0187).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Loewe whose telephone number is (571)270-3298. The examiner can normally be reached on Monday through Friday from 5:30 AM to 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. L./

Examiner, Art Unit 1796

12-Dec-08

/Randy Gulakowski/

Supervisory Patent Examiner, Art Unit 1796